

Water Conflict Looming in the Twenty-First Century

Kheireddine BOUHEDDA*

University of Medea-Yahia FARES (Algeria), bkheire2015@yahoo.com

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Abstract:

Water wars have been waged in the 21st century; Water like air is very vital for life on the earth. In this context, according to the International Environmental Establishment Fund, the water crisis constitutes a global concern about water shortage, this is confirmed by many international institutions, academics and researchers interested in all parts of the world the seriousness of the water situation. Many countries in the world such as the Middle East, China, India, Ethiopia, Australia and Egypt will struggle with a dangerous shortage of water. In this paper, that is an attempt to indicate how the water can be a source of insecurity and food shortage that would lead to conflict? The goal of raising a problem is to highlight the degree that water resources can become frightening in the twenty-first century in many countries around the world. The methodology of the study is descriptive quantitative analytical approach.

Keywords: Food shortage, Water security, Water conflict, Water scarcity.

* *Corresponding author*

1. INTRODUCTION

The climate change postures a lot of dangers to international security, however, inter-alia the major urgent is access to life-sustaining resources, which is water. The Middle East are the areas where is the greatest threat, Turkey, has built dams to store waters of the Tigris and Euphrates rivers, structures which are strongly opposed by Syria and Iraq. In Africa, the renaissance Dam where Ethiopia is building it is alarming war verses Sudan and Egypt. Many countries in the World will struggle with a dangerous shortage of water. The UN suggests there are around 300 potential conflicts over water around the World. In this paper, which is an attempt to indicate how the water can be a source of insecurity and food shortage that would lead to conflict to war? Some Asian and African countries are as examples for the study. The goal of raising this problem is to highlight the degree that water resources can become frightening in the twenty-first century in many countries around the world. The methodology of the study is descriptive quantitative analytical approach. In order to understand and answering the problem question, one has to point-out the cause of water shortage and water as sources of conflict that led to war in some hot zones over the World.

2. Methodology of the study.

The researcher collected research material data about water scarcity and water conflict that is happening now days. Then, it became the subject of analyses. The researcher examined sources as well as the rich works; data from, United States institute of peace ,international water management institute Strategic Foresight Group, Institute of Peace and Security Studies, from books, reports, articles and websites. To investigate the discussed issue and answer the research question, the researcher selected case studies on Asia, the Middle East, Africa, Latino America and the river basins showing immense sensitivity to water-related conflicts. The researcher embraced case studies that are analytical and quantitative method that have been used, in holistic approach to answer the problem question of the study and analyzing the objective of the researcher.

3. Defining the Conceptions of the Study

Before analyzing the problem questions and the Objective of the study, one has to refer to concepts, which are the pivot of the research. And as we are going to analysis in this paper that all the concepts of the study are interrelated to each other.

3.1 Water Scarcity

Actually, it is not that easy to find perfect meanings to water scarcity, but the researcher try to get a meaningful definition, water scarcity can be defined “water demand exceeds the water resources exploitable under sustainable conditions”. (Policy, 2011) European Environment Agency, defined water scarcity happens where there are insufficient water resources to satisfy long-term average requirements. (Agency, 2018) Also, water scarcity always occurs in regions with low rainfall, desertification, and intensive agriculture. Water scarcity is broadly recognized as one of the reasons of

important violence and conflict within states.

3.2 Water Conflict

Some researchers and academics stated that water conflict started in the aftermath of the Cold War, dated to a 1991 in an article in Foreign Policy, by Joyce Starr. That has been changing perceptions of security, which is a major threat of international conflict. (Ohlsson, 1995) Water conflicts may take methods and follow a pathway involving any of the essentials of water security, water access, available water quantity or quality, livelihood and growth, water-related catastrophes, and political processes. (Michel, 2020) Actually, one has to agree with what has been said: when water is scarce, or access to water is controlled for ideological or political causes, conflict can result. (Gleick P. , 2018)

3.3 Water Security

Some definitions that one has to mention regarding water security, we mention: the ability of a state or population to access sufficient quantities of improved water to maintain adequate standards of food and goods production, sanitation and health. (Rogers, 2009) We have to mention that during the second World Water Forum in 2000, at the forum define water security “water security at any level from the household to the global means that every person has access to enough safe water at affordable cost to lead a clean, healthy and productive life, while ensuring that the natural environment is protected and enhance” (Emma Norman with Karen Bakker, 2010) hence water security concept is multidimensional, according to Van beek and Arries. In this paper, the concept of water security is connected to the concept of water conflict and water scarcity.

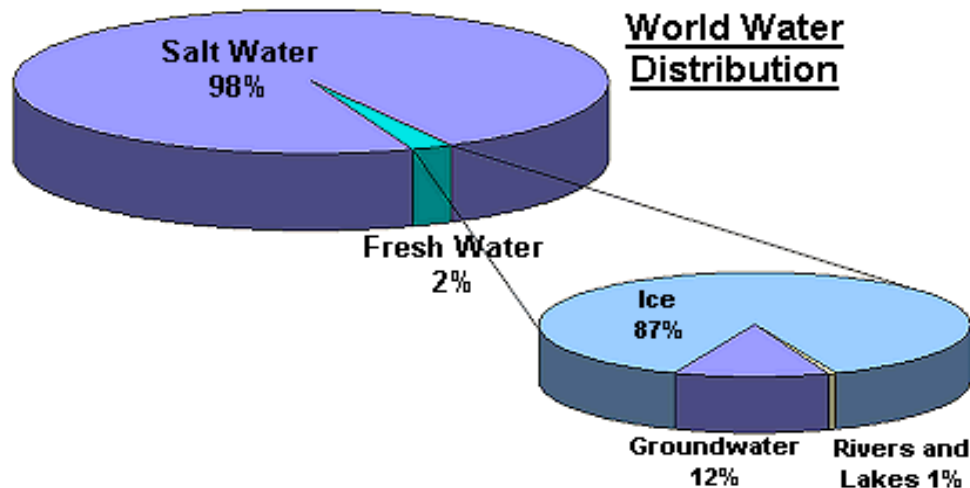
3.4 Food Shortage

This concept known many definitions, after looking and choosing the right and clear meaning, one has to say: food shortages are a formula of food insecurity that happens when all three of the basic conditions for food security are not met, which are adequacy, availability and access. (Safeopedia, 2022) However, the causes of food shortage are various and vary from country to country, but one can point out that it is a result of desertification, drought, conflict, and poverty. According to the World Food Program report, 135 million people are experiencing “acute food insecurity” in 2019. The cause was conflict for the half of these people. Food shortage has been threatening developing countries, and possibly by a lot.

4. A Global Perspective to Water

The total amount of water on earth is very much limited. There is only 2.5% which is not salty. The most body of freshwater found in rivers and lakes makes up only 0.01% of the planet's total 1.4 billion cub kilometers of water. (Jason Gehrig, 2009). However, around 2.1% of freshwater is in glaciers that store about 24,060,000 cubic kilometers of water, which is the 2nd largest reservoir of water with most of them in Greenland and Antarctica. (Science, 2022) Freshwater sources, like rivers, wetlands and lakes, only

constitute about 93,100 cubic kilometers, which is about 1/150th of one percent of total water. (Valavanidis, 2019) The following diagram illustrates the majority of fresh water that is locked away as ice caps, continental ice sheets and glaciers. (Gleick, 1996) Today the freshwater used for all purposes surpasses 3.700km³ per year. The Agriculture is the largest user, consuming almost two-third of all water drawn from rivers, lakes and groundwater; furthermore, industry uses about 20% of available water, the municipal sector uses 10%. (Technology, 2002)



(World Water Distribution)

Source: <https://snr.unl.edu/data/images/water/groundwater/waterdist.gif>

Freshwater as we knew that is very unequally distributed over the Globe. Many water flows are only related globally in limited cycles, so, that why water management condition varies significantly from place to place. For example, Middle East countries, the flow of water there differs from Canada or Brazil, the second region have much more water than the first region.

Also, Africa appears to be endowed with water resources; it has large lakes, long rivers, vast wetland and groundwater. It has 17 rivers, and it has more than 160 lakes lagers than 27 km², most of which are located around the equatorial ad the sub-humid East African Highlands within the Rift Valley. (Africa, 2003) Access to enhanced potable water has increased by 20 percent in sub-Saharan Africa over Millennium Development Goals period from 1990 to 2015, but the region fell short of reaching that objective, due to many issues such as desertification, drought, armed conflict in some parts of Africa, disputes of border and dams that are/were behind many crises that convert some time to conflict, not to mention that populations growth also is having an effect on water conflict.

5. Water as a Source of Conflict

Many academics and analysis expect that water may replace oil in the 21st century as the major cause of geopolitical pressures. Worldwide, at least 214 rivers flow through two or more countries. However, water has become a major problem with developing nations. More than twenty-countries depend on the flow of water from other nations for much of their water supply (Technology, 2002) for example, the Nile flows through

Ethiopia, Sudan, and Egypt. The importance of the Nile in the area cannot be overvalued, as it runs in 11 countries, covering almost 7000 km, and providing fresh water to nearly 400 million people. (Briollais, 2021) Recently, the tensions among the above mention States worsened over the Renaissance Dam. The dispute over the Grand Ethiopian Renaissance Dam (Figure 1), which is part of a dispute between Egypt and Sudan -the downstream States- and Ethiopia and the upstream riparian's over access to Nile's water, that are considered a lifeline for millions of people living in Egypt and Sudan. Ethiopia remains advancing with the dam, arguing that the hydroelectric project will significantly improve livelihoods. (Mbaku, 2020)

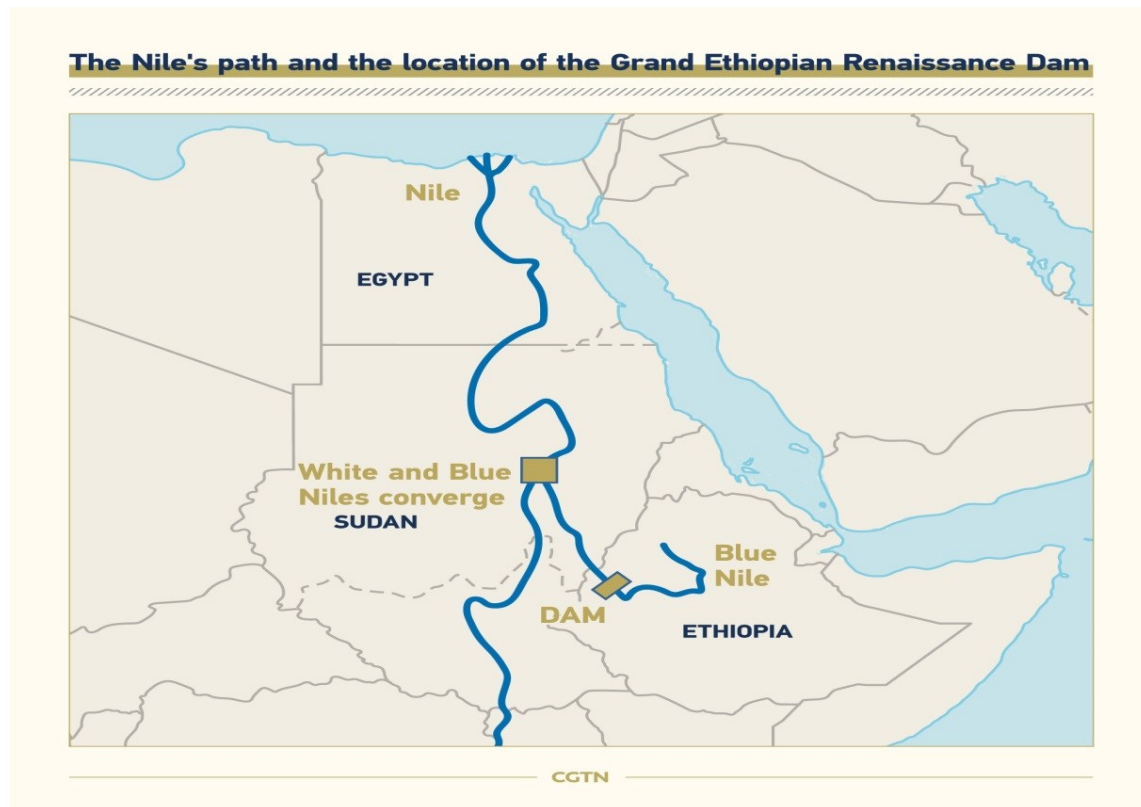


Figure 1

Source: <https://news.cgtn.com/news/2020-07-22/Ethiopia-Egypt-reach-major-common-understanding-on-dam-SkKI4wLLmE/index.html>

The other possibly explosive region is the Middle East, that is mostly desert in climate and with the growing population such as Jordan, Syria and Lebanon, all draw water from the Jordan and Yarmouk river, while Jewish settlers and Palestinians in the West Bank are profoundly reliant on the Western Aquifer Basin (Aujah- Tamasseh in Arabic and Yarkon/ Taninim in Hebrew) is the largest, freshest and most productive groundwater basin in all Historical Palestine. (Messerschmid, 2020) That is a disputed zone. In Gaza, the groundwater level is reported sinking by 15 to 20 cm a year, while its quality deteriorates due to encroaching seawater. Gaza runs out of potable water, that will lead to humanitarian disaster. (BATEH, 2020). The Golan Heights, called The Middle East's water towers, are a crucial point in peace talks between Israeli and Syria. Golan is to provide around one-third of Israel's water supply. (agencies, 2019), the conflict over the Golan is severely driven by resources. The difference of water consumption in the Occupied Palestinian Territory has been the cause of much chaos

and conflict, in the urban areas; the occupying Israeli communities consume seven-time as much water per capita as the Palestine Muslims. Water maybe a cause of an unseen and dormant issue, and that can be one of many problems that face Palestinian in the near future.

India has long argued with Bangladesh over the tapping of the Ganges River. In the view of the Hindus to drink from the Ganges is to bring luck, therefore, life is considered incomplete if they do not bathe in the river at least once in their lifetime. (Qadri, 2020) In India, the Ganges River is far more than just a river; it is religion, culture industry, farming, and politics. It is, for many observers, the center of spiritual life for more than a billion people. The water conflict started in 1975, when India built a dam on the Ganges near the eastern border with Bangladesh and began to divert water into another river to flush silt from Calcutta's port. (Cooper, 1996) However, India initially ignored protests from its poorer, weak and smallest neighbor, because the change of the River would harm the Ganges basin downstream in Bangladesh. (Cooper, 1996) In 1977 the two neighbor States reached an agreement that lasted ten-years. Since then, India started to reduce the amount of water that come from the dam during the dry season, causing many problems to its neighbored Bangladesh. In 1996 and due to the change of leadership in Bangladesh with Sheik Hasina, the two States reached an agreement. The treaty guaranteed that for a total incoming flow of 75,000 cusec, India could divert 40,000 cusec from the Barrage, leaving 35,000 cusec for Bangladesh. (Jain, 2020)

In south-Asia, most Mekong countries which are included, China (the upper Basin) through Myanmar, Laos, Thailand, Cambodia, and Vietnam (the lower basin). (NOVAsia, 2012) (Figure2). China has been planning and building hydropower dams since late 1980s. However, other Mekong countries argue that China stores more than its fair share of water due to dam building in the Upper Mekong. (AlertNet, 2012)



Figure (2) Map of operational, planned, and dams under construction along the Mekong River as of June 2020

Source: <http://novasiagsis.com/wp-content/uploads/2022/01/Mekong-dams-operational-June-2020-rotated-1-576x1024.jpg>

The Mekong River is regarded for its length and animal diversity, with enormous economic impacts on the countries that it runs through fisheries near the Mekong River are worth \$2.5 billion per years, making them crucial profit generators. (NOVAsia, 2012) Not to mention that it provides livelihood for at least 60 million people. But, the Chinese government built in recent years many dams that withholding water to go to downstream countries, in which Chinese government has faced criticism and accusation of manipulating water supplies to downstream countries. (Sasipornkarn, 2019) Thailand, which has been experiencing its worst drought in a decade, asked Laos to stop teats last month (June 2019), in which that Dam was built by Thailand Company to generate electricity. However, China is operating 11 dams and plans to build 8 on the upper stretch of the Mekong River. (Sasipornkarn, 2019), though these Dams are growing tensions between the Mekong Countries. According to International Water Management Institute, Singapore, Pakistan, and part of China and India are among 17 countries and regions around the World that are facing “absolute water scarcity”. Also, one here has to mention that Afghanistan shares the Trans boundary Harirud Rive with Turkmenistan and Iran. That it shares a hostile relationship. (Vij, 2022)

In Latin America, on February4, 2000, police from La Paz, Bolivia facing anti-riot in the city of Cochabamba to overpower protests in rural and urban inhabitants. The

reason of that protestation due to the privatization of water services in the Cochabamba valley. (Coleman, 2012) Argentina in 1996 a series of protest arisen in response to the privatization of provincial water services, and the Argentine subsidiary of A French Multinational Corporation, caused a dramatic rise in rates and decline in water quality. (Coleman, 2012) The population of Tucuman requested a right to sanitary and reasonable price and refused to pay the bills.

In North America, in the down 20th century saw the U.S. Mexico frontiers facing a series of water management challenges, in which the dispute over water between United and Mexico are clashing over their declining shared water supplies due to scarce rainfall. The drought on the middle-lower Rio Grande since the mid of 1990s which mean less Mexican water flows to the United States of America, not to mention that the Colorado River Basin, which supply seven U.S. states and two Mexican states is at low level. Mexico's government has a commitment to send 1.75 million acre-feet of water across the border to the U.S., but the Mexican authority did not secure that commitment three times since 1992. (Robert Gabrie Varady, 2021)

6. Water as a Source of Insecurity and Food Shortage in Africa

According to the UN Environment Program, the need of fresh water in Africa is greater. In last ten years (2010-2019), the continent of Africa accounted for 26% of the total number of the combats over water around the world. (Smit, 2020) But, the number of the conflict over water doubled in the past two decades, increasing from 67 to 122. In Africa, 26 conflicts over water happened between 1990 and 2019. Nearly two of three Africans living in rural areas, lack an adequate water supply according to African development bank (AFDB). About 425 million out of the 1.25% billion people in Africa (or 34%) in 2017 lacked access to basic drinking water, while 750 million people (60%) did not have access to basic sanitation facilities. (Bank, 2020) Africa is the only continent where poverty is expected to increase over the twenty-first century. For instance, in Namibia the fresh water is so scaring that around one sixth of the water supply comes from recycled swage. Marina Amakali, director of Water Resource Management in the Ministry of Agriculture, said: "2018/19 season saw extreme drought prevailing countrywide, where Namibia received less than 50 percent of average seasonal rainfall." (Nakale, 2019) Another area of potential shortage is the quickly vanishing Lake Chad which is bordered by Niger, Nigeria, Cameroun, and Chad itself. (figure3) The lake has shrunk by 90 percent, from 25,000 km² in 1963 to less than 1,500 km² in 2001. The decline of this lake left many farmers and fisherman out of their jobs. Most of them have been recruited into armed groups such as Boko Haram and Islamic state, increasing violence in the region (center, 2009). This percentage is employed to back up convincing chains of causal links to explain the many issues that the area encounters. (Vivekananda, 2019) The lake has proved to be a particularly convenient narrative for leaders in the region. The lake of Chad is caught in a conflict trap that weakens people's capacity to deal with the changes that an increasingly variable climate is bringing. (Vivekananda, 2019).



(Figure 3)

Source : <https://blogs.worldbank.org/sites/default/files/blogs-images/2020-06/20200616-lakechad-region-01-780px.png>

Angola is facing the worst recorded drought in 40 years. The Integrated Food Security Phase (IPC) analysis for October 2021 to March 2022 indicated that about 1.58 million people are experiencing high levels of acute food insecurity. (Societies, 2021) High levels of food insecurity and other impacts of the drought are in the most provinces: such as, Cuanza Sul, Benguela, Huambo, Namibe, Huila, and Cunene. (Societies, 2021) Humanitarian organizations are warning of an imminent food emergency in southern Angola as the region faces the outcome of the poorest recorded drought in nearly fifty-year. (Coulson, 2022) In line with its Drought Response Plan, the government is undertaking key adaption and mitigation projects. One of them is the Cafu canal, which diverts water from the Kunene River. Kenya has experienced a severe drought that millions of Kenyans are unable to grow their crops and keep their lives took alive, because Kenya's economy is based around and agricultural hub. (Marshall, 2011) That means water is much important to agriculture not to mention that a large population especially women and children spend up to one third of their day fetching water from sources. In Burkina Faso, around 80 to 90% make their livelihoods on agriculture that mean that it depends on rain fall. Observers estimated that in 2021 rainfall and drought combined with Burkina Faso's security crisis to reduce harvest yield and limit access to clean water and adequate sanitation and hygiene facilities that threaten nutrition and health. (US., 2022) Oxfam evaluation that water access has dropped by 40% in some regions of the country, and suggested that we should move that population from those areas. Niger, that bordered Burkina Faso form northern-east territory and sits totally within the Sahel. That means entire country threatened by dissertation and drought. UNICEF estimates that only 56% of Nigerians have access to water and just 13% have access to basic sanitation services. Things that make it difficult in Niger are violence and insecurity in some regions.

However, sometime in Africa water can lead to tension or war, as we have seen above between tripeptide Ethiopia and Egypt. The tributary of the Zambesi, has become a cause of tension between Botswana, Mozambique, Zambia, and Zimbabwe (Figure4)



(Figure 4)

Source : https://www.oars.com/wp-content/uploads/2016/12/Zambezi_river_basin.jpg

But, like many rivers of its size the Zambesi basin supports the basic need of 30 million people, in which eight countries depend on it namely; Angola, Botswana, Malawi, Mozambique Namibia, Tanzania, Zambia, and Zimbabwe. The causes behind the tension between the four countries that we mentioned above (Botswana, Mozambique, Zambia, and Zimbabwe) are dams that fueled Conflict in the region. In Mozambique Tele Province, the Cahora Bassa Dam forms the fourth largest basin in Africa. Most of the Dam's electricity is exported to South Africa through the Mozambican. (Sanyanga, 2022) Border dispute between Senegal and Mauritania over the control of the Senegal's River (Figure 5), is still affecting the Atlantic Coast of Africa. (Salmone, 1998) Not to mention that the desertification and droughts which pushed herders to move from place to place, from north to south around the River until they reach African farmers. This sparked tensions between the two countries stemming from territorial disputes during the late 1980s. However, the two governments agreed to engage in peaceful negotiation, since that the relation between the two states have been remained stable.



(Figure 5)

Source : <https://upload.wikimedia.org/wikipedia/commons/7/7a/Senegalrivermap.png>

The border between Ethiopia and Somalia were witnessed clashes over the dispute over water and pastures in the border village of Yamatug in 2006. Parts of Somalia were experiencing the most severe drought in four decades, which clashes happened between the Marehan and Majereteen faction of the Darod clan. (José Antonio Peña-Ramos, 2022) The traditional Marehan leader in Abudwaaq claimed that the chiefs of both groups were in continuous. Over all there were/are many water disputed areas in Africa, such as Clash over water on the Mali-Burkina Faso Border in 2012, conflict over access to water between Herders and Farmers near the Kenya-Ethiopian border and violent conflict between Kenyan and Ugandan Herders. (José Antonio Peña-Ramos, 2022)

7- Conclusion

As we have seen above the entire problems of water scarcity were/are situated in developing countries. One-third of the developing countries will face severe water scarcities in twenty-first century. (Andrew Kellerl, 2000) Water conflict, water scarcity, and water security are all concepts interconnected to each other, which led/lead to food shortage, desertification, famine, and conflict. As we mentioned early that water as a source of conflict in Asia, Africa and even in Latin America could be the cause of many issues within states. Rivers has been the root of those conflicts; India with Pakistan and Bangladesh and China ... In Africa, whether in East or West, rivers and lakes are also

making problems, within states of the continent especially to those that relayed on to build their sustainable security and supportable economic of the state and the region. Water scarcity now-day affects every continent, that means water shortage is among the major issues which a lot of societies to be faced in the twenty-first century. Water inadequacy as we have seen above is both a natural and a human-made phenomenon. There is sufficient freshwater for seven billion people, but is distributed unevenly and also polluted and wasted. Many academics and researchers foreseen conflict over water scarcity is more valuable than oil, and it can happen anytime and anywhere.

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